



DEFENSE INFORMATION SYSTEMS AGENCY

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IN REPLY
REFER TO: Joint Interoperability Test Command (JTE)

14 Jul 09

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Extension of the Special Interoperability Test Certification of Nortel Networks Meridian Switching Load (MSL)-100 (XACORE Processor) Digital Switching System Software Release SE06 with Specified Software Patches

References: (a) DOD Directive 4630.5, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
(b) CJCSI 6212.01C, "Interoperability and Supportability of Information Technology and National Security Systems," 20 November 2003
(c) through (i), see Enclosure

1. References (a) and (b) establish the Defense Information Systems Agency (DISA), Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification.

2. The Nortel Networks MSL-100 (XACORE Processor) Digital Switching System Software Release SE06 with specified Software Patches, hereinafter referred to as the system under test (SUT), meets the critical interoperability requirements and is certified as interoperable for joint use within the Defense Switched Network (DSN). The SUT was tested and met the critical interoperability requirements for joint use within the DSN for the following switch types: Multifunction, End Office, Small End Office, Private Branch Exchange (PBX) 1, and PBX 2. The identified test discrepancies that remained open after software patches were applied and regression testing was completed have a minor operational impact. This certification expires upon system changes that affect interoperability, but no later than three years from the date of the original memorandum (26 April 2005).

3. The extension of this certification is based upon a desktop review and Defense Information Assurance (IA)/Security Accreditation Working Group (DSAWG) accreditation. The original certification is based on the following: Interoperability testing of the Nortel Networks MSL-100 (BRISC Processor) Digital Switching System with Software Release SE06 and specified Software Patch Groups conducted at JITC, Fort Huachuca, Arizona, from 25 September 2003 through 8 December 2003. Additional patch validation and regression testing was conducted to fix outstanding critical test discrepancies between 12 December and 29 December 2003 and documented in reference (c). Testing of the MSL-100 (XACORE Processor) was conducted by JITC at Nortel Networks test facility Richardson, Texas, from 23 through 31 August 2004, and from 15 through 17 February 2005, documented in reference (d), and review of vendor's Letter of Compliance (LoC). Test data review was completed on 24

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February 2005. A desktop review was requested to include patch release DSN55P2R. This patch will provide WWNDP capability as requested by DISA. Although this certification has expired and the MSL-100 (XACORE Processor) Digital Switching System Software Release SE06 is no longer available for purchase, systems currently fielded are authorized to upgrade to this patch release. The desktop review request was approved on 22 June 2009.

4. The interoperability summary of the SUT is indicated in Table 1. The interoperability status and criticality are listed in Table 2, and the Exchange Requirements (ERs) and Functional Requirements (FRs) for each network interface are listed in Table 3. The SUT product line offers a Remote Switch Unit capability referred to as the Remote Switching Center. This product line also offers a Voice over Internet Protocol capability. Preliminary testing was performed on these capabilities, but neither is covered by this certification. Network Management (NM) capabilities of the SUT platform were tested in accordance with the DISA NS53 requirements as set forth in references (e) and (f). These references require that a switch provide NM capabilities via Ethernet, serial Electronic Industries Alliance (EIA-232), or serial (X.25 or BX.25 variant). The SUT meets the NM requirements through the use of serial EIA-232 and Ethernet connections. This interoperability test summary is based upon evaluation of:

a. The following network interfaces as specified in reference (g): DSN, Defense Red Switch Network Gateway, Tactical Network Gateway, North Atlantic Treaty Organization Gateway, and Public Switched Telecommunications Network Gateway.

b. Interface and signaling requirements for trunk, line, and network management interfaces, and interoperability ERs and FRs derived from reference (h).

c. The overall system interoperability performance derived from test procedures listed in reference (i).

d. Review of LoC submitted by Nortel Networks.

e. Special Interoperability Test Certification of Nortel Networks MSL-100 (BRISC Processor) Digital Switching System with Software Release SE06 and Specified Software Patches, dated 17 May 2004.

Table 1. SUT Interoperability Summary

Network	Critical	Status	Remarks
DSN	Yes	Certified	- Certified as MFS, EO, SMEO, PBX 1 and PBX 2. - E1 CAS and CDC certified (DISN-E only). - VoIP not certified. - RSU not certified. - The identified test discrepancies that remained open have an overall minor operational impact.
DRSN Gateway	Yes	Certified	Met all critical ERs and FRs.
Tactical Gateway	Yes	Certified	Met all critical ERs and FRs.
NATO Gateway	No	Not Tested	
PSTN Gateway	Yes	Certified	Met all critical ERs and FRs.

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Table 1. SUT Interoperability Summary (continued)

LEGEND:			
CAS	Channel Associated Signaling	MFS	Multifunction Switch
CDC	Common Data Channel	NATO	North Atlantic Treaty Organization
DISN-E	Defense Information System Network-Europe	PBX 1	Private Branch Exchange 1
DRSN	Defense Red Switch Network	PBX 2	Private Branch Exchange 2
DSN	Defense Switched Network	PSTN	Public Switched Telephone Network
E1	European Basic Multiplex Rate (2.048 Mbps)	RSU	Remote Switching Unit
EO	End Office	SMEO	Small End Office
ERs	Exchange Requirements	SUT	System Under Test
FRs	Functional Requirements	VoIP	Voice over Internet Protocol
Mbps	Megabits per second		

Table 2. SUT Interoperability Status

	Trunk Interfaces			
	Interface & Signaling	Critical	Status	Remarks
Defense Switched Network	PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS DTMF	Yes	Certified	Met all critical ERs and FRs.
	PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS MFR1	Yes	Certified	Met all critical ERs and FRs.
	PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS DP	Yes	Certified	Met all critical ERs and FRs.
	PCM-30 E1 CAS HDB3 MFR1	Yes	Certified	Met all critical ERs and FRs.
	PCM-24 T1 (B8ZS/ESF) SS7	Yes	Certified	Met all critical ERs and FRs.
	PCM-30 E1 HDB3 SS7	Yes	Certified	Met all critical ERs and FRs.
	PCM-24 T1 (B8ZS/ESF) ISDN PRI	Yes	Certified	Met all critical ERs and FRs.
	Line Interfaces			
	Interface & Signaling	Critical	Status	Remarks
	TPC ISDN BRI ST and U Interface Q.931	Yes	Certified	Met all critical ERs and FRs. ISDN Supplemental Service is not supported ¹ . There is not operational impact. MLPP interaction with EKTS not met. ² Operational impact is minor.
	TPC 2-Wire analog	Yes	Certified	Met all critical ERs and FRs.
	TPC 2-Wire Digital and Analog (Proprietary)	No	Certified	Met all critical ERs and FRs. MLPP interaction with the MADN configuration not met. ² Operational impact is minor.
	Network Management Interfaces			
	Interface & Signaling	Critical	Status	Remarks
CAT 5 TPC IEEE 802.3 10BaseT Ethernet, TCP/IP	No	Certified	Met all critical ERs and FRs.	
TPC EIA-232 Asynchronous @ 9.6 kbps	No	Certified	Met all critical ERs and FRs.	
TPC X.25 or BX.25 Synchronous	No	Not Tested	No operational impact.	
Defense Red Switch Network Gateway	Trunk Interfaces			
	Interface & Signaling	Critical	Status	Remarks
TPC 2-Wire analog	Yes	Certified ³	Met all critical ERs and FRs.	
Tactical Network Gateway	Trunk Interfaces			
	Interface & Signaling	Critical	Status	Remarks
	PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS MFR1	No	Certified	Met all critical ERs and FRs.
PCM-30 E1 HDB3 CAS MFR1	No	Certified	Met all critical ERs and FRs.	

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Table 2. SUT Interoperability Status (continued)

NATO Gateway	Trunk Interfaces			
	Interface & Signaling	Critical	Status	Remarks
		No	Not Tested	See note 4.
PSTN Gateway	Trunk Interfaces			
	Interface & Signaling	Critical	Status	Remarks
	Same Interfaces and Signaling as DSN above.	Yes	Certified ⁵	Met all critical ERs and FRs.

NOTES:

- ISDN supplemental services currently not used in the DISN. There is no operational impact.
- Single directory number only. Multiple appearance directory numbers (MADN) not certified. The operational impact is minor.
- Interoperability Certification of the SUT does not constitute DRSN PM approval for connectivity to the DRSN. It is the user's responsibility to request connectivity approval directly from the PM.
- Not all switches are required to perform this function. Operational impact is minimal.
- The certification of interoperability with commercial networks was verified based on the review of the vendor's letter of compliance to requirements identified as the "Letter" and "Verify" items listed in appendix E of reference (i) and specified in tables 2-1 through 2-15 of reference (h).

LEGEND:

10BaseT	10 Mbps (Baseband Operation, Twisted Pair) Ethernet	ITU	International Telecommunication Union
AMI	Alternate Mark Inversion	kbps	kilobits per second
B8ZS	Bipolar Eight Zero Substitution	MADN	Multiple Appearance Directory Number
BRI	Basic Rate Interface	Mbps	Megabits per second
CAS	Channel Associated Signaling	MFR1	Multi-Frequency Recommendation 1
CAT	Category	MLPP	Multi-Level Precedence and Preemption
DISN	Defense Information Systems Network	NATO	North Atlantic Treaty Organization
DP	Dial Pulse	PCM-24	Pulse Code Modulation - 24 Channels
DRSN	Defense Red Switch Network	PCM-30	Pulse Code Modulation - 30 Channels
DSN	Defense Switched Network	PM	Program Manager
DTMF	Dual Tone Multi-Frequency	PRI	Primary Rate Interface
E1	European Basic Multiplex Rate (2.048 Mbps)	PSTN	Public Switched Telephone Network
EIA	Electronic Industries Alliance	Q.931	ITU Signaling Standard for ISDN
EKTS	Electronic Key Telephone System	SF	Superframe
ERs	Exchange Requirements	SS7	Signaling System 7
ESF	Extended Superframe	ST	ISDN BRI Four-Wire Interface
FRs	Functional Requirements	SUT	System Under Test
HDB3	High Density Bipolar Three	T1	Digital Transmission Link Level 1 (1.544 Mbps)
IEEE	Institute of Electrical and Electronics Engineers, Inc.	TCP/IP	Transmission Control Protocol/Internet Protocol
IEEE802.3	IEEE Ethernet Protocol	TPC	Twisted Pair Copper
ISDN	Integrated Services Digital Network	U	ISDN BRI Two-Wire Interface

Table 3. SUT Exchange and Functional Requirements

	Trunk Interfaces	
	Interface & Signaling	Exchange & Functional Requirements
	PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS DTMF	<ul style="list-style-type: none"> - Preset Conference - MLPP - Hotline services - System Interface <ul style="list-style-type: none"> • Non-Secure Voice and Data • Secure Voice and Data (STU-III and STE) • NX56 kbps and NX64 kbps Synchronous Data • Non-Secure and Secure FAX • VTC • Alarms - Common Channel Signaling/Signaling System Seven (SS7) (<i>T1 and E1 SS7 only</i>) - Integrated Services Digital Network (<i>ISDN PRI only</i>) - Attendant services (See note 1.) - System Administration, Measurements, and Service Standards - Y2K (Rollover, Valid, and Invalid Dates) - Screening, Zone Restriction, and DSN Access Restriction - COI - Automated Message Accounting - Internal Overload Control - Automatic Call Gap Manual Controls - Nailed-Up Connections (<i>T1 and E1 CAS only</i>) - Network Integration - Common Data Channel (<i>T1 and E1 CAS only</i>) - ANSI T1.619a (<i>T1 ISDN PRI and SS7 only</i>)
PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS MFR1		
PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS DP		
PCM-30 E1 CAS HDB3 MFR1		
PCM-24 T1 (B8ZS/ESF) SS7		
PCM-30 E1 HDB3 SS7		
PCM-24 T1 B8ZS/ESF ISDN PRI		
	Line Interfaces	
	Interface & Signaling	Exchange & Functional Requirements
Defense Switched Network	TPC ISDN BRI ST and U Interface Q.931	<ul style="list-style-type: none"> - Preset Conference - MLPP - Hotline services - ANSI T1.619a - ISDN supplemental services - COI - Call Treatments - ESP - DSN Announcements - Attendant services - EKTS - VTC - NX56 kbps and NX64 kbps Synchronous Data - Non-Secure Voice and Data - Secure Voice and Data (STE)
	TPC 2-Wire analog	<ul style="list-style-type: none"> - Preset Conference - MLPP - Hotline services - DSN Announcements - COI - Traffic Measurements - Attendant services¹ - Call Treatments - ESP - Non-Secure Voice and Data - Non-Secure and Secure FAX - Secure Voice and Data (STU-III and STE)

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Table 3. SUT Exchange and Functional Requirements (continued)

Defense Switched Network (continued)	TPC 2-Wire Digital and Analog (Proprietary)	<ul style="list-style-type: none"> - Preset Conference - MLPP - Hotline services - DSN Announcements - COI - Traffic Measurements - Attendant services¹ - Call Treatments - ESP - Non-Secure Voice
	Network Management Interfaces	
	Interface & Signaling	Exchange & Functional Requirements
	CAT 5 TPC IEEE 802.3 10BaseT Ethernet, TCP/IP	<ul style="list-style-type: none"> - Automated Message Accounting - Traffic Measurements
TPC EIA-232 Asynchronous @ 9.6 kbps	<ul style="list-style-type: none"> - Alarms - Man Machine Language 	
Defense Red Switch Network Gateway	Trunk Interfaces	
	Interface & Signaling	Exchange & Functional Requirements
	TPC 2-Wire analog	<ul style="list-style-type: none"> - MLPP - Secure Voice (STU-III and STE)
Tactical Network Gateway	Trunk Interfaces	
	Interface & Signaling	Exchange & Functional Requirements
	PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS MFR1	<ul style="list-style-type: none"> - MLPP - Non-Secure Voice
PCM-30 E1 HDB3 CAS MFR1		
NATO Gateway	Trunk Interfaces	
	Interface & Signaling	Exchange & Functional Requirements
	Not tested	See note 2.
PSTN Gateway	Trunk Interfaces	
	Interface & Signaling	Exchange & Functional Requirements
	Same Interfaces and Signaling as DSN above.	See note 3.
<p>NOTES:</p> <p>1 SUT meets all the GSCR exchange requirements for attendant services with the following consoles: NT4X09AG, NT4X09AB, and T-Metrics with software release 7102081953.</p> <p>2 MSL-100s are not currently used as NATO Gateway switches; no operational impact.</p> <p>3 The certification of interoperability with commercial networks was verified based on the review of the vendor's letter of compliance to requirements identified as the "Letter" and "Verify" items listed in appendix E of reference (i) and specified in tables 2-1 through 2-15 of reference (h).</p>		

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Table 3. Exchange and Functional Requirements (continued)

LEGEND:			
10BaseT	10 Mbps (Baseband Operation, Twisted Pair) Ethernet	Mbps	Megabits per second
AMI	Alternate Mark Inversion	MFR1	Multi-Frequency Recommendation 1
ANSI	American National Standards Institute	MLPP	Multi-Level Precedence and Preemption
B8ZS	Bipolar Eight Zero Substitution	MSL	Meridian Switching Load
BRI	Basic Rate Interface	NATO	North Atlantic Treaty Organization
CAS	Channel Associated Signaling	NX56	Data format restricted to multiples of 56 kbps
CAT	Category	NX64	Data format restricted to multiples of 64 kbps
COI	Community of Interest	PCM-24	Pulse Code Modulation - 24 Channels
DP	Dial Pulse	PCM-30	Pulse Code Modulation - 30 Channels
DSN	Defense Switched Network	PRI	Primary Rate Interface
DTMF	Dual Tone Multi-Frequency	PSTN	Public Switched Telephone Network
E1	European Basic Multiplex Rate (2.048 Mbps)	Q.931	ITU Signaling Standard for ISDN
EIA	Electronic Industries Alliance	SF	Superframe
EKTS	Electronic Key Telephone System	SS7	Signaling System 7
ESF	Extended Superframe	ST	ISDN BRI Four-Wire Interface
ESP	Essential Service Protection	STE	Secure Terminal Equipment
FAX	Facsimile	STU-III	Secure Telephone Unit -3 rd generation
GSCR	Generic Switching Center Requirements	SUT	System Under Test
HDB3	High Density Bipolar Three	T1	Digital Transmission Link Level 1 (1.544 Mbps)
IEEE	Institute of Electrical and Electronics Engineers, Inc.	T1.619a	SS7 and ISDN Signaling Standard for T1
IEEE802.3	IEEE Ethernet Protocol	TCP/IP	Transmission Control Protocol/Internet Protocol
ISDN	Integrated Services Digital Network	TPC	Twisted Pair Copper
ITU	International Telecommunication Union	U	ISDN BRI Two-Wire Interface
kbps	kilobits per second	VTC	Video Conferencing
		Y2K	Year 2000

5. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/.gov users on the NIPRNet at <https://stp.fhu.disa.mil>. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at <http://jit.fhu.disa.mil> (NIPRNet), or <http://199.208.204.125> (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at <http://jitc.fhu.disa.mil/tssi>.

6. The JITC point of contact is Capt. Oskar Widecki, DSN 879-5269, commercial (520) 538-5269, FAX DSN 879-4347, or e-mail oskar.widecki@disa.mil. The JITC's mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The tracking number for the SUT is 42081.

FOR THE COMMANDER:

Enclosure a/s


for RICHARD A. MEADOR
Chief
Battlespace Communications Portfolio

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Defense Information Systems Agency, GS23

ADDITIONAL REFERENCES

- (c) JITC Memo, JTE, "Special Interoperability Test Certification of Nortel Networks MSL-100 (BRISC Processor) Digital Switching System with Software Release SE06," 17 May 2004
- (d) JITC Memo, JTE, "Special Interoperability Test Certification of Nortel Networks Meridian Switching Load (MSL)-100 (XACORE Processor) Digital Switching System Software Release SE06 with Specified Software Patches," 26 April 2005
- (e) Defense Information Systems Agency (DISA) NS53, Memorandum, "DSN Switch Network Management Interface," 26 July 2001
- (f) DISA NS53, Memorandum, "DSN Network Management Requirements for End Offices," 2 August 2001
- (g) Chairman of the Joint Chiefs of Staff Instruction (CJCSI), "Policy for Department of Defense Voice Services," 23 September 2001
- (h) DISA, Joint Interoperability and Engineering Organization (JIEO), Technical Report 8249, "Defense Information Systems Network (DISN) Circuit Switched Subsystem, Defense Switched Network (DSN) Generic Switching Center Requirements (GSCR)," March 1997
- (i) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP)," 17 June 1999